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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,648	12/13/2005	Peter Hofbauer	APT-2.005.PCT.US	3828

22874 7590 07/18/2007  
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EXAMINER
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ALI, HYDER

ART UNIT	PAPER NUMBER
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3747

MAIL DATE	DELIVERY MODE
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07/18/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/560,648

Applicant(s)

HOFBAUER ET AL.

Examiner

HYDER ALI

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 July 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 10/10/06.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

It is suggested that applicants delete intended use limitation such as **"adapted to"** from claims. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

### *Specification*

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

- 1. Claims 18 and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Hofbauer (US 6,170,443).**

As to Claim 18, Hofbauer discloses an engine comprising: an internal combustion engine comprising at least two opposed cylinders 1100,1200, each cylinder comprising at least one pair of opposed pistons 1210,1220,1110,1120 reciprocating along a common axis, and an end of each opposed piston, in conjunction

with a cylinder, defining a combustion chamber 1150, 1250; and the pair of opposed pistons comprising an inner piston and an outer piston; the cylinder comprises at least one exhaust port 1163 disposed so that reciprocation of the inner piston opens and closes the exhaust port, and at least one intake port 1161a disposed so that reciprocation of the outer piston opens and closes the intake port; a crankshaft 1300 linked to the inner piston by a push rod 1412, 1422, and the crankshaft 1300 linked to the outer piston by a pull rod 1411, 1421 wherein rotation of the crankshaft causes asymmetric port timing. **See Figs. 6-8, col. 13, lines 17-65.**

As to Claim 21, Hofbauer discloses wherein the crankshaft is adapted so that there is a phase angle of about 20 degrees between the intake ports and the exhaust ports.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to

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consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**2. Claims 1-5,10,13-17,19,20,22-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofbauer (US 6,170,443) in view of Greene (US 2,093,433).**

Hofbauer have been described above.

Hofbauer discloses everything except specifying that the engine has a scavenge pump and radiating fins associated with each cylinder, the scavenge pump comprising a first scavenging chamber and a second scavenging chamber.

Greene discloses an engine has a scavenge pump associated with each cylinder, the scavenge pump comprising a first scavenging chamber 27 and a second scavenging chamber 30. See col. 4, lines 17-30, and col. 6, lines 5-30.

It would have been obvious to a person having ordinary skill in the art to modify Hofbauer by employing first and second scavenging chambers as taught by Green in order to provide Hofbauer engine with first and second scavenging chambers. It would have been obvious to employ radiating fins comprise fins having a helical pattern in order to cool the cylinder, since radiating fins comprise fins having helical pattern are conventional employed by most air cooled engines.

The motivation to do so would have been to improve opposed pistons engine operation.

**3. Claims 6-9,11,12,26-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hofbauer (US 6,170,443) in view of Karl (1,837,620).**

Hofbauer have been described above.

Hofbauer discloses everything except specifying that the pushrods and pullrods employing single tang and two tangs.

Karl discloses pistons 115 are connected to the crankshaft 109 with single tang and two tangs.

It would have been obvious to a person having ordinary skill in the art to modify Hofbauer by employing single tang and two tangs as taught by Karl in order to fit the pullrods and pushrods on a common crank pin in a freely rotatable manner, since they are art recognized equivalent for rotating the crankshaft.

The motivation to do so would have been to simplify the configuration of the crankshaft of an engine in which cylinders are disposed horizontally on the opposite sides of the crankshaft, by employing such an arrangement that pullrods and pushrods associated with a pair of cylinders are fitted on a common crankpin in a freely rotatable manner.

**Conclusion**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johnson (US 1,569,497), Twombly (US 1,233,621) and Bundrick, Jr. (US 4,419,969).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to HYDER ALI whose telephone number is (571) 272-4836. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Kirk Cronin can be reached on (571) 272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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